What is claimed is:

1. A microelectronic device comprising:

a package core having an opening therein;

a microelectronic die located within the opening of said package core; and

a fiber reinforced encapsulation material within the opening of said package core to hold said microelectronic die within said package core, said fiber reinforced encapsulation material including a polymeric resin having a fibrous filler material.

2. The microelectronic device of claim 1, wherein:

said fibrous filler material includes individual fibers having a length between 1 micrometer and 40 micrometers.

3. The microelectronic device of claim 1, wherein:

said fibrous filler material includes individual fibers having a length to width ratio that is no less than 5.

4. The microelectronic device of claim 1, wherein:

said fibrous filler material includes glass fibers.

5. The microelectronic device of claim 1, wherein:

said fibrous filler material includes carbon fibers.

6. The microelectronic device of claim 1, wherein:

said fibrous filler material includes Kevlar® fibers.

7. The microelectronic device of claim 1, wherein:

said fibrous filler material includes ceramic fibers.

8. The microelectronic device of claim 1, wherein:

said fibrous filler material includes metal fibers.

9. The microelectronic device of claim 1, wherein:

said polymeric resin includes epoxy.

10. The microelectronic device of claim 1, wherein:

said polymeric resin includes plastic.

11. The microelectronic device of claim 1, comprising:

at least one metallization layer built up over said package core, said at least one metallization layer being conductively coupled to bond pads on a surface of said microelectronic die.

12. A microelectronic device comprising:

a package substrate;

a microelectronic die mechanically coupled to said package substrate, said microelectronic die having a plurality of electrical contacts that are conductively coupled to contacts on said package substrate; and

a fiber reinforced encapsulation material mechanically coupled to said microelectronic die to provide structural support for said microelectronic die, said fiber reinforced encapsulation material including a polymeric resin having a fibrous filler material.

13. The microelectronic device of claim 12, wherein:

said fiber reinforced encapsulation material forms a fillet between said microelectronic die and said package substrate.

14. The microelectronic device of claim 12, wherein:

said fiber reinforced encapsulation material forms a globule covering said microelectronic die.

15. The microelectronic device of claim 12, wherein:

said package substrate includes a flexible circuit board.

16. The microelectronic device of claim 15, wherein:

said fiber reinforced encapsulation material fills a region between said microelectronic die and said flexible circuit board.

17. The microelectronic device of claim 12, wherein:

said fibrous filler material includes individual fibers having a length between 1 micrometer and 40 micrometers and a length to width ratio that is no less than 5.

18. A method for manufacturing a microelectronic device comprising:

providing a package core having an opening therein;

positioning a microelectronic die within the opening in said package core; and

dispensing a fiber reinforced encapsulation material into said opening in said package core to fill a gap between said microelectronic die and said package core, said fiber reinforced encapsulation material including a polymeric resin having a fibrous filler material.

19. The method of claim 18, wherein:

dispensing a fiber reinforced encapsulation material includes creating a flow of encapsulation material about said microelectronic die in a direction that is approximately perpendicular to a direction of anticipated crack formation.

20. The method of claim 19, wherein:

said direction of anticipated crack formation is an outward direction from a corner of said microelectronic die.

21. The method of claim 18, wherein:

said package core includes a first channel in fluid communication with said opening, wherein dispensing a fiber reinforced encapsulation material includes injecting said fiber reinforced encapsulation material into said first channel.

22. The method of claim 21, wherein:

said package core includes a second channel in fluid communication with said opening, wherein dispensing a fiber reinforced encapsulation material includes creating a partial vacuum within said second channel.

23. The method of claim 18, comprising:

applying a first protective film over a first surface of said package core before dispensing said fiber reinforced encapsulation material, said first protective film covering said opening in said package core.

24. The method of claim 23, comprising:

applying a second protective film over a second surface of said package core before dispensing said fiber reinforced encapsulation material, said second protective film covering said opening in said package core.